MR00-K03 Cruise Summary

The northern North Pacific, especially its western part, has been attracting attention of chemical oceanographers because of its importance in global biogeochemical cycles of carbon and its related materials, which have a great impact to the climate change of the earth. In addition, physical oceanographers have been interested in that region with respect to the formation of the North Pacific Intermediate Water. Despite its importance, there have been few systematic surveys to cover the temporal and spatial variation of biogeochemical processes in the area. Main goal of this cruise is to clarify the behavior of carbon and its related materials in the area.

Based on the above-mentioned goal, a cruise was planed to focus on the area along the Kuril Islands including southern part of the Okhotsk Sea, the Kruzenshterna Strait, Bussol Strait, Etorufu Strait, and the Oyashio Area, as well as the Stn. KNOT, Japan's time series observation station. Especially, emphasis was placed on clarification of water mass formation/mixing along the Kuril Islands and post-bloom biogeochemistry in the northwestern North Pacific.

R/V Mirai left Mutsu, Aomori Prefecture on May 9, 2000 for the cruise and was back to the city on June 10. During its 33 days of the cruise, we have occupied 30 stations for hydrocasts and/or CTD measurements, 4 stations for sediment core sampling, and more than 60 stations for XBT/XCTD casts. In order to study the structure of eddies occurred around the Kuril Islands, the locations for XBT/XCTD casts were determined based on satellite images of sea surface temperature. Biological observations (plankton sampling, bio-optic measurements) were done at the main hydrocast stations. Moored sediment traps were also recovered and redeployed. In the meantime, underway measurement of surface biogeochemical parameters as well as T and S were done while the ship was steaming. Measurement of the atmospheric components such as CO2, O2, and aerosol were continuously measured. Details of the observations are described in the following chapters.